

1 WE CLAIM:

2 1. A method for representing lanes with a road database comprising:  
3 storing in the road database data representations of physical road lanes; and  
4 associating with each data representation of a physical road lane  
5 data indicating start and end points of the represented physical road lane;  
6 and  
7 data indicating what physical features are adjacent to the represented  
8 physical road lane on a right side and a left side thereof.

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10 2. The method of Claim 1 wherein the data indicating what physical features  
11 are adjacent to the represented physical road lane indicate another physical road lane,  
12 which can be entered by a lane change.

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14 3. The method of Claim 1 wherein the data indicating what physical features  
15 are adjacent to the represented physical road lane indicate another physical road lane but  
16 which cannot be entered.

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18 4. The method of Claim 1 wherein the data indicating what physical features  
19 are adjacent to the represented physical road lane indicate a physical road lane is in the  
20 process of forming.

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22 5. The method of Claim 1 wherein the data indicating what physical features  
23 are adjacent to the represented physical road lane indicate a physical road lane is in the  
24 process of ending.

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26 6. The method of Claim 1 wherein the data indicating what physical features  
27 are adjacent to the represented physical road lane indicate a shoulder.

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29 7. The method of Claim 1 wherein the data indicating what physical features  
30 are adjacent to the represented physical road lane indicate another drivable surface.

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8. The method of Claim 1 wherein the data indicating what physical features are adjacent to the represented physical road lane indicate no drivable surface.

9. The method of Claim 1 further comprising:  
associating with at least some data representations of physical road lanes data indicating a sublane of the represented physical road lane,  
wherein the data indicating a sublane include data indicating start and end points of the represented sublane, wherein the data indicating start and end points of the represented sublane are defined relative to an end of the physical road lane of which the sublane is a part.

10. The method of Claim 1 further comprising:  
associating with some data representations of a physical road lane data indicating multiple sublanes of the represented physical road lane,  
wherein each of the multiple sublanes is represented by data indicating start and end points of the respective associated represented sublane, wherein the data indicating start and end points of the represented sublane are defined relative to an end of the respective associated physical road lane of which the sublane is a part.

11. The method of Claim 10 wherein at least some of the sublanes associated with some physical road lanes overlap.

12. The method of Claim 1 further comprising:  
associating with each data representation of a physical road lane data indicating a geometry of the represented physical road lane.

13. The method of Claim 12 wherein the geometry of a represented physical road lane includes a clothoid.

1           14.    The method of Claim 12 wherein the geometry of a represented physical  
2 road lane includes a spline.

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4           15.    The method of Claim 1 wherein each data representation of a physical  
5 road lane further comprises:

6               a reference to at least one data entity used for navigation-related purposes that  
7 represents the road segment of which the physical road lane is a part.

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9           16.    The method of Claim 1 wherein the data representations of physical road  
10 lanes represent lanes that are less than full width.

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12           17.    A method for representing lanes with a road database comprising:  
13               storing in the road database data representations of physical road lanes;  
14               associating with each data representation of a physical road lane data indicating  
15 start and end points of the represented physical road lane; and  
16               associating with at least some data representations of physical road lanes data  
17 indicating a sublane of the represented physical road lane,  
18               wherein the data indicating a sublane include data indicating start and end points  
19 of the represented sublane, wherein the data indicating start and end points of the  
20 represented sublane are defined relative to an end of the physical road lane of which the  
21 sublane is a part.

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23           18.    The method of Claim 17 wherein the data indicating a sublane include  
24 attributes that take precedence over the same attributes of the represented physical road  
25 lane of which the sublane is a part.

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27           19.    The method of Claim 17 wherein some of the data representations of  
28 physical road lanes have multiple data representations of sublanes associated with a  
29 single physical road lane.

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1           20.    The method of Claim 19 wherein some of the multiple sublanes associated  
2 with a single physical road lane overlap.

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4           21.    The method of Claim 17 wherein the data representations of physical road  
5 lanes represent lanes that are less than full width.

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7           22.    A database that models roads comprising:  
8           data representations of physical road lanes, wherein each data representation of a  
9 physical road lane includes  
10          data indicating start and end points of the represented physical road lane; and  
11          data indicating what physical features are adjacent to the represented physical  
12 road lane on a right side and a left side thereof.

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14          23.    The database of Claim 22 further comprising:  
15          data entities that represent roads for navigation-related purposes,  
16          wherein the data representations of physical road lanes refer to those data entities  
17 that represent roads for navigation-related purposes that represent those roads of which  
18 the physical road lanes are a part.

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20          24.    The database of Claim 22 wherein said data representations of physical  
21 road lanes are stored on a computer-readable medium.

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23          25.    The database of Claim 22 wherein the data representations of physical  
24 road lanes represent lanes that are less than full width.

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26          26.    A database that models roads comprising:  
27          data representations of physical road lanes, wherein each data representation of a  
28 physical road lane includes  
29          data indicating start and end points of the represented physical road lane; and

1            wherein at least some of the data representations of physical road lanes include  
2 data indicating a sublane of the represented physical road lane,  
3            wherein the data indicating a sublane include data indicating start and end points  
4 of the represented sublane, wherein the data indicating start and end points of the  
5 represented sublane are defined relative to an end of the physical road lane of which the  
6 sublane is a part.

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8            27.     The database of Claim 26 wherein said data representations of physical  
9 road lanes are stored on a computer-readable medium.

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11           28.     The database of Claim 26 wherein the data representations of physical  
12 road lanes represent lanes that are less than full width.

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